



Operations, Maintenance & Construction

Capital Refurbishment Program





Operations, Engineering & Construction Inspection Programs



- **Structure Inspection Program (SIP)**
- **Microwave Tower Inspection Program**
- **Roof Maintenance Inspection Program**

OBJECTIVE:

- **Perform multi-engineering discipline and underwater inspection of District Infrastructure by individuals certified and licensed in their field.**
- **Inspections performed on a 5 year cycle or as needed to ensure operational integrity of District infrastructure.**
- **Findings used to assist the District in:**
 - **Identifying and prioritizing repairs.**
 - **Capital refurbishment plan prioritization.**
 - **Meeting FDEP permit compliance requirements and USACE Rehabilitation Inspection Program requirements.**



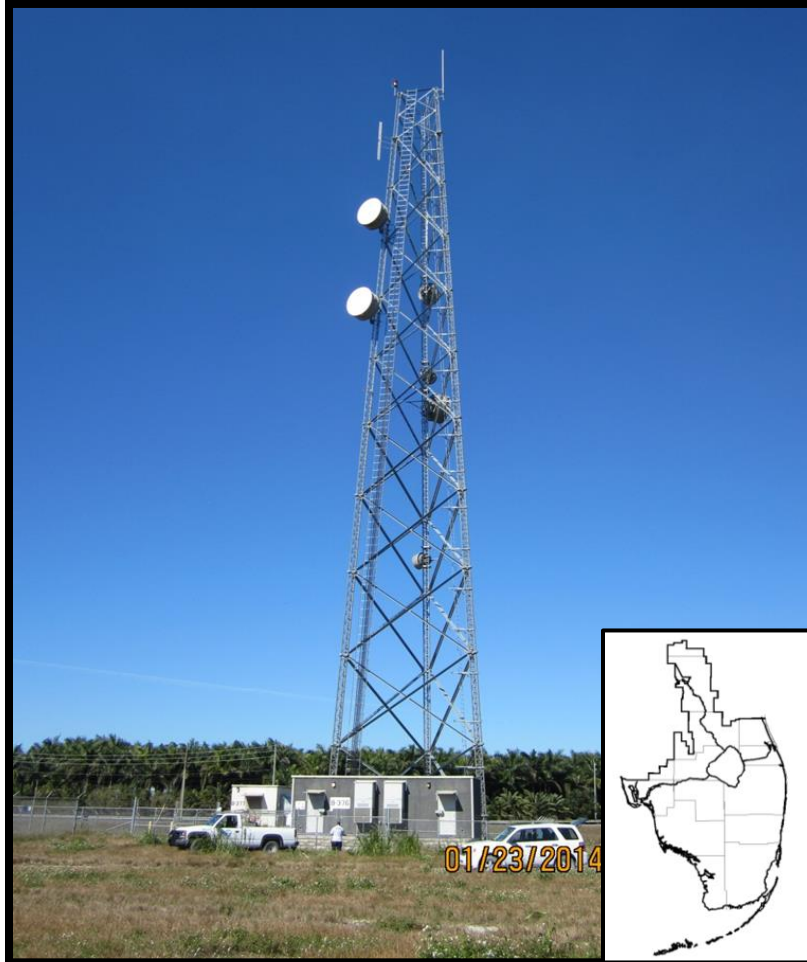
Operations, Engineering & Construction Inspection Programs

Benefits:

- Reduces emergency work efforts allowing for better use of District resources and operation of the system.
- Identifies warranty repairs saving District time and money for future repairs.
- Enables more efficient resource utilization at the field stations, through planned repairs, rather than reactive maintenance.
- Prioritizes repair or replacement of infrastructure reducing liability to the District for improperly maintained structures and prolong the life of the infrastructure.
- Allows for future trend analysis of components through compiled data.



Operations, Engineering & Construction FY14 SIP Projects: Microwave Tower Repairs



District Wide

Project Scope:

Risk Score: **11.52**, Priority: **2**

- Number of towers for repair – **35** Towers
- Tower Structure:
 - Repair or replace corroded steel structural members.
 - Replace all corroded, missing bolts and braces.
 - Tighten and torque all bolts that are loose.
- Safety Devices – Replace all corroded life safety line and appurtenances.
- Lightning Protection & Grounding – Replace all damaged, missing parts & conductors as necessary for a working system.



Operations, Engineering & Construction FY14 SIP Projects: G-70 Gated Culvert



Miami-Dade County - WCA 3B

Project Scope:

Risk Score: **3.0**, Priority: **2**

- Single barrel CMP, manually operated stem gate.
- Remains closed for about 20 years & no data in DBHydro.
- Removal or replace structure. Removal preferred.
- Overall C-5 rating.



Operations, Engineering & Construction FY14 SIP Projects: S31/S32A/S32/S377 Repairs



Miami-Dade County - WCA 3B

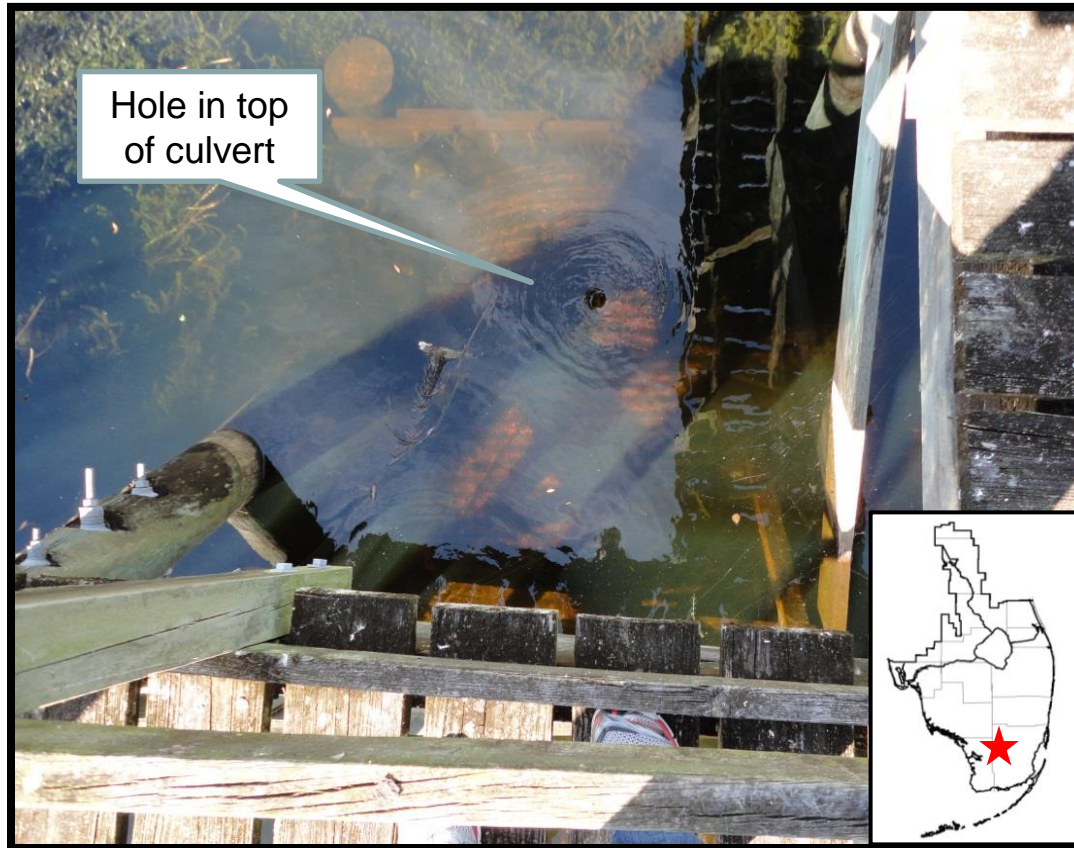
Project Scope:

Risk Score: **6.89**, Priority: **3**

- **S-31:**
 - Remove abandoned building (circled in red)
- **S-32:**
 - Gate Repair
 - Concrete Barrier Removal
 - Guardrail Installation
- **S-32A**
 - Replace Platform
- **S-377**
 - Guardrail Repair
 - Rip-rap Repair



Operations, Engineering & Construction FY14 SIP Projects: S343A/S343B/-344 Repairs



Miami-Dade County - WCA 3A

Project Scope:

Risk Score: **4.34**, Priority: **4**

- Slip Line each culvert at each site & refurbish gates.
- S-343A & S-343B: C-4 rating.
S344: C-4 rating.
- Re-grade downstream banks.



Operations, Engineering & Construction FY14 SIP Projects: G-114 Weir Replacement



Urban Miami-Dade County

Project Scope:

Risk Score: **12.40**, Priority: **2**

- Remove and replace weir.
- Overall C-4 rating.



Operations, Engineering & Construction FY14 SIP Projects: Gate Replacement Program



Throughout Miami-Dade County

Project Scope:

Risk Score: **12.18-2.4**, Priority: **2-5**

Miami & Homestead:

S120, S121, S25A, A195, S122, S149
S173, S338, S194, S196, S175, S14

- Remove & refurbish and/or replace gates.
- Overall C-4 rating.
- Additional work may include:
 - Shoal Removal
 - Endwall undermining &/or crack repair
 - Sand Cement Endwall repair
 - Culvert joint repair
 - Culvert replacement



Operations, Engineering & Construction FY14 Non-SIP Capital Program Projects

- **BCB: GG1-7, Coco1-7, FU4-7, CYP1, CR951 1&2, CORK 1&2, HC1, SR29 1-8**
- **WPB FS Revitalization Plan**
- **Dupuis Maintenance Facility**
- **G-450 (Allapattah Culvert)**
- **BCB New Tower**
- **S-71 TWW Scour Hole & Weir Repair**
- **Arc Flash Warning Sign Installation**
- **G-310 & G-335 Debris Removal System**
- **S-319 Automatic Transfer Switch**
- **Manatee Protection New Technology**
- **S-331 Communications & Control**

Small Projects



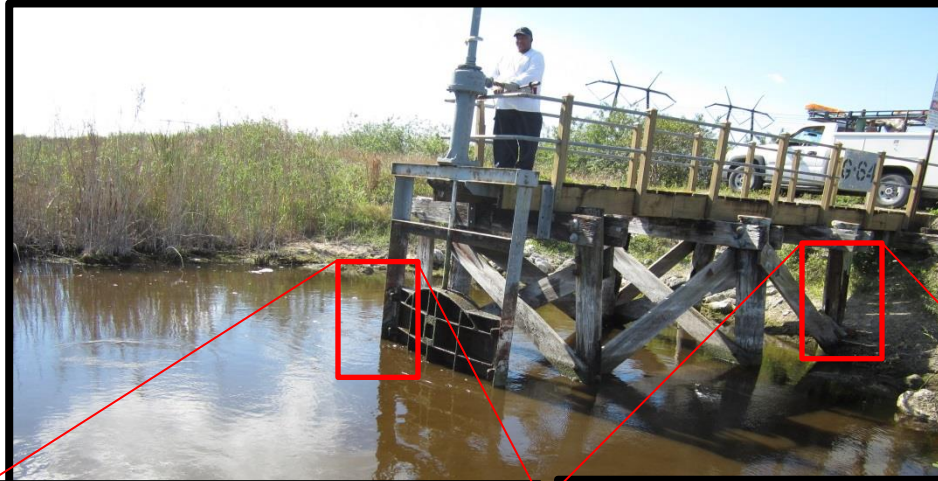
- **Low Cost**
- **Minimum Engineering Design**
- **Immediate Need**





Operations, Engineering & Construction

Small Project: G64 Gated Culvert Replacement



Ft Lauderdale

Issue: C-5 Rating. Rotted Timber Support Piles & Gate/Frame Corrosion

Probable Cause: Age, corrosive & moist environment.

Recommend: Replace culvert through culvert replacement program.



Broward County – WCA 3A



Operations, Engineering & Construction

Small Project: Bank/Riprap G96/G135/G205/G206/S190

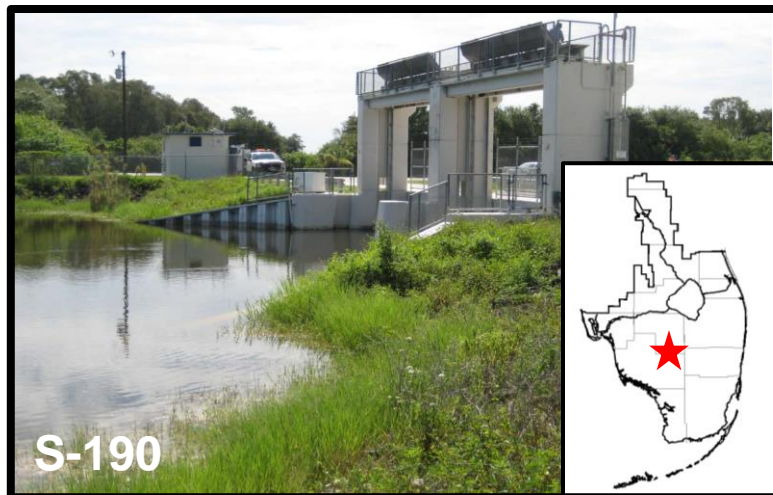


Clewiston

Issues: G-96, G-135, G-205, G-206 & S-190 have missing riprap, steep bank slopes and signs of erosion on upstream and downstream sides. S-190 also has overgrown vegetation.

Probable Cause: Riprap was not installed per design and/or riprap deteriorated overtime.

Recommendation: Stabilize the banks. This will require adding fill and re-grading the slopes, installing filter fabric, adding bedding stone, and installing rip rap. Remove vegetation from S-190 slopes prior to bank stabilization.



G205: Palm Bch County – EAA/WCA- 3A

S190: Hendry County – Big Cyp. Res.



Operations, Engineering & Construction

Small Project: S-700 Debris Removal System



Urban Miami-Dade County

Miami

Issue: Debris builds up at the end of the trash rake causing the system to shut off. This in turn stops pump operation.

Probable Cause: Not included in the original design.

Recommendation: Install conveyor to move debris to a dumpster. The new conveyor will require making minor changes to the site plan. Including:

- Fencing
- Concrete pad
- Landscaping
- Addition of a Dumpster



Operations, Engineering & Construction Risk Based Prioritization

Addition of Risk Based Prioritization to Capital Program Project Backlog Prioritized Based on the Following Categories:

Likelihood of Failure Categories:

- Physical Condition
- Impacts to Operation & Maintenance
- Frequency of Operation

Consequence of Failure Categories:

- Public Health, Safety, Security & Service
- Financial Impact
- Vulnerability
- Legal Implication



Semi-annual Prioritization Meeting

Risk Score = Consequence of Failure X Likelihood of Failure:

Capital Projects

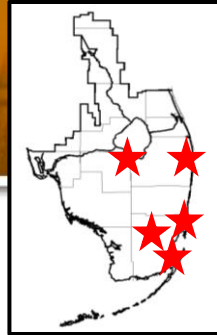


- **Higher Cost**
- **Significant Engineering Design**
- **Prioritized over all identified Projects**





Operations, Engineering & Construction Capital Projects FY14



FY14 Accomplishments (cont.):

•Completed Projects included:



Miami FS B47 Repl.



EOC Chiller Repl.



T5 Monitoring Sta. Repl.



S-21 Cathodic Protection



S-235 Gate Repl.



FY14 PC Culvert Repl.



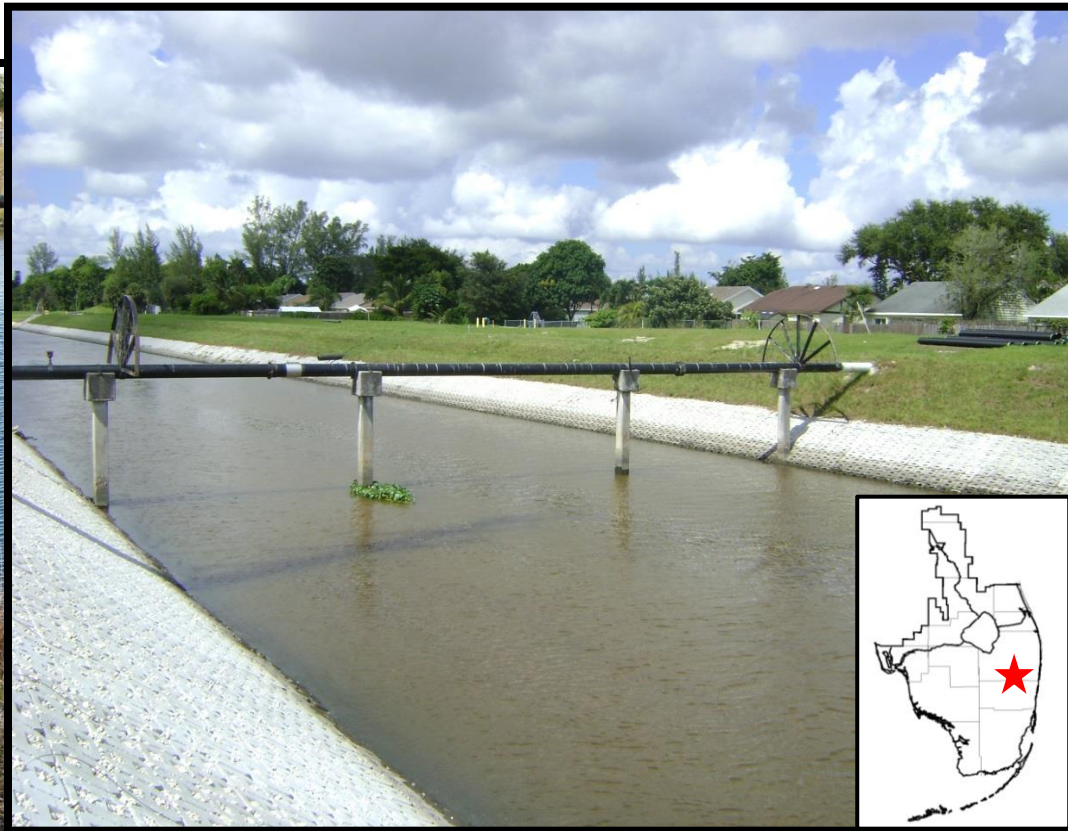
Operations, Engineering & Construction Capital Projects FY14

FY14 Accomplishments (cont.):

•Construction Progress Hillsboro Canal Stabilization



September 2013



September 2014

Palm Beach/Broward Counties



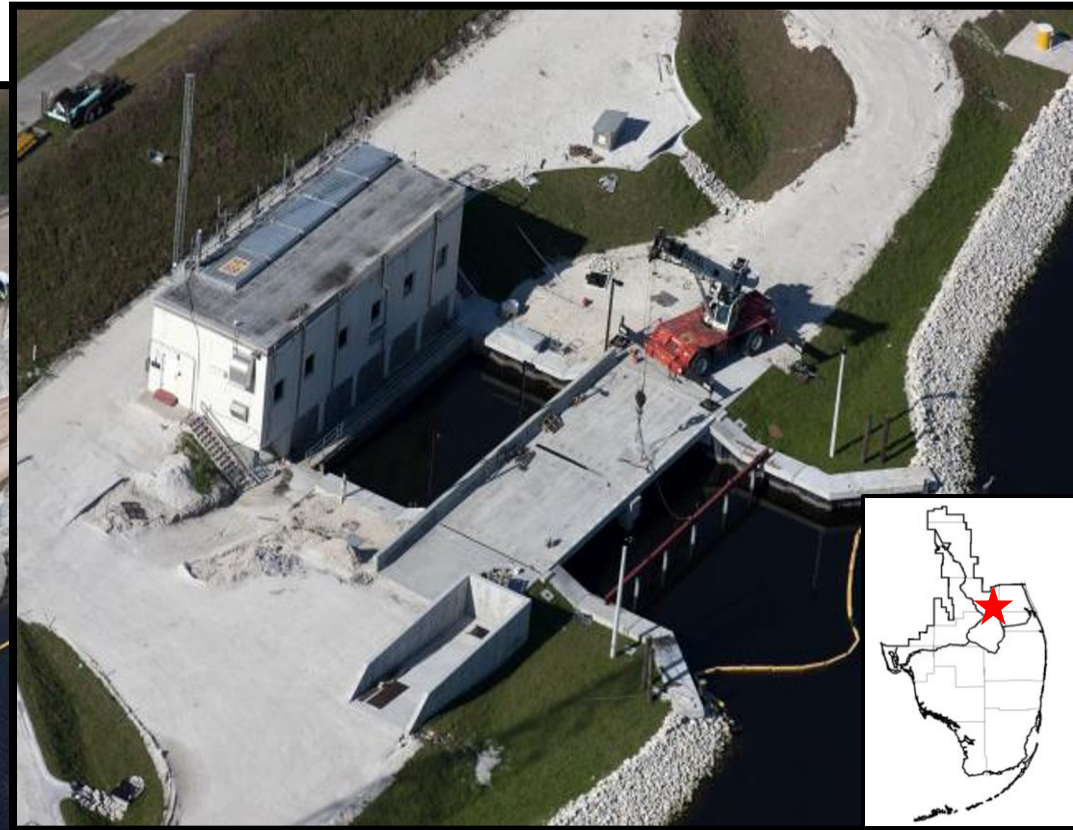
Operations, Engineering & Construction Capital Projects FY14

FY14 Accomplishments (cont.):

•Construction Progress North Shore Trash Rakes:



November 2013



August 2014

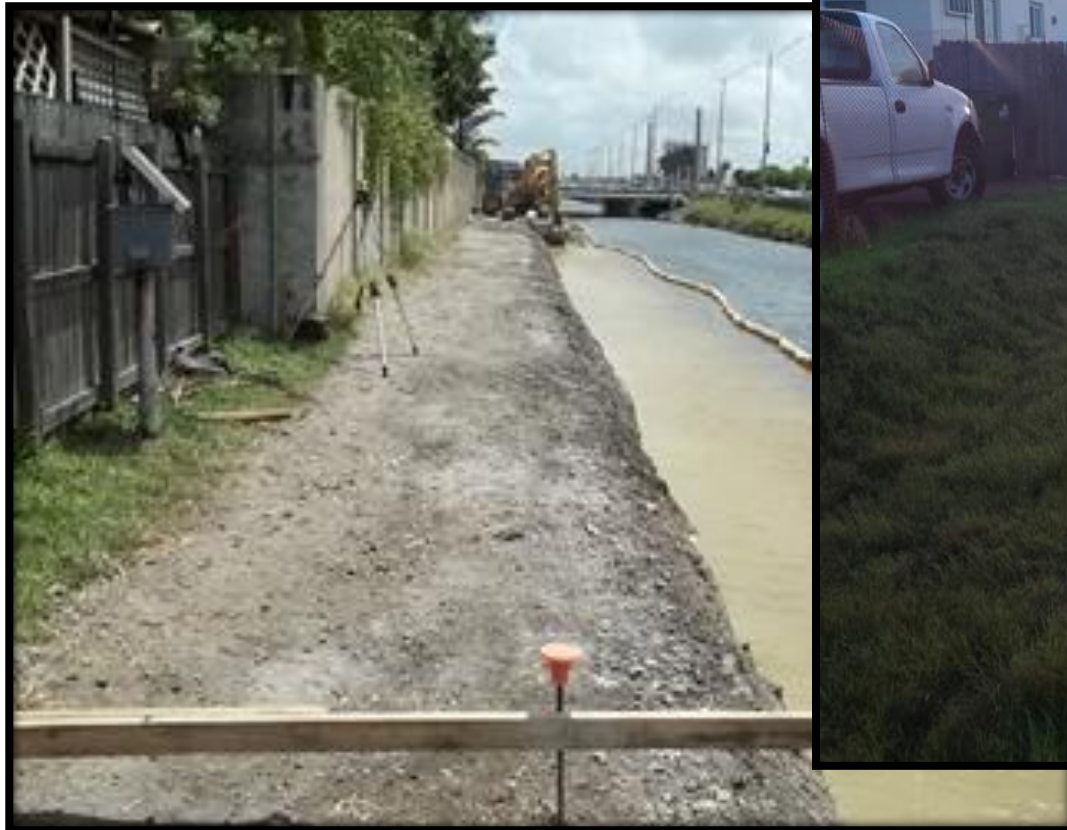
Okeechobee County



Operations, Engineering & Construction Capital Projects FY14

FY14 Accomplishments (cont.):

•Construction Progress C4 Canal Stabilization:



April 2014



August 2014

Miami-Dade County



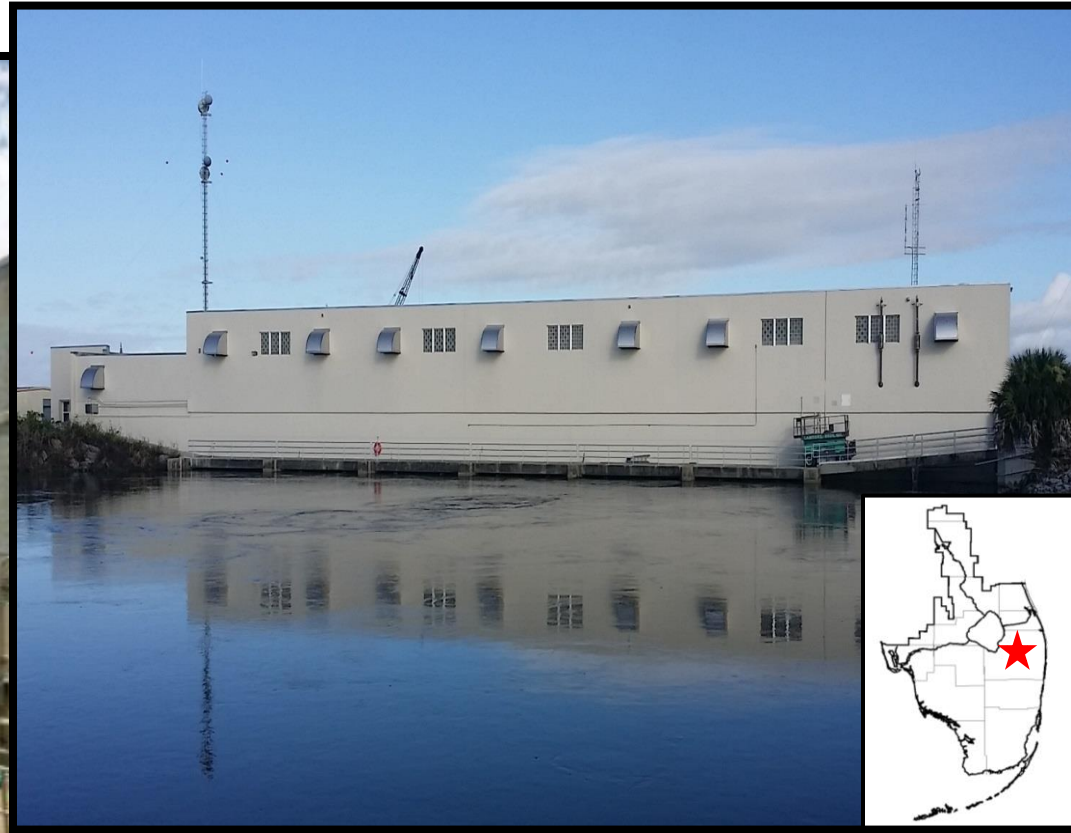
Operations, Engineering & Construction Capital Projects FY14

FY14 Accomplishments (cont.):

•Construction Progress S5A Hardening and Service Bridge:



September 2013



September 2014

Palm Beach County - EAA



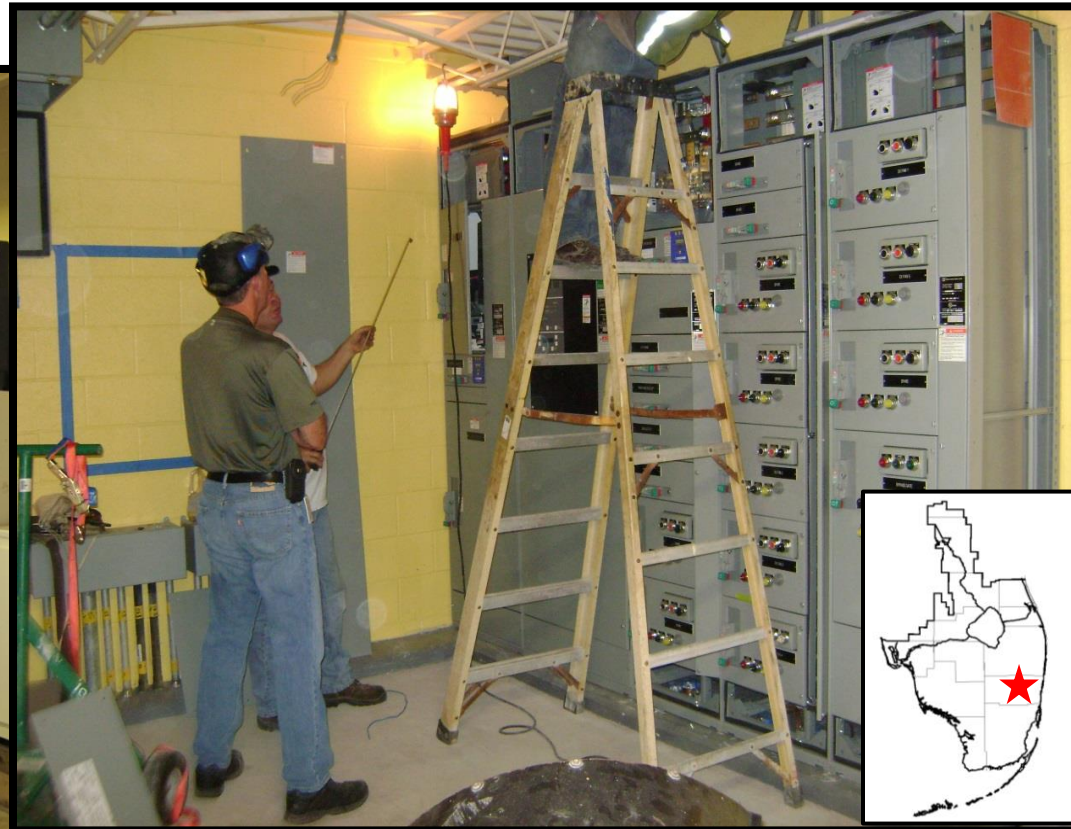
Operations, Engineering & Construction Capital Projects FY14

FY14 Accomplishments (cont.):

•Construction Progress S-13 Pump Station Repower:



March 2014



September 2014

Broward County



Operations, Engineering & Construction Capital Projects FY14 – FY15

FY14 Accomplishments (cont.):

- Completed new General Engineering Services Contracts.
- Technical Review resulted in a change order total of only \$698,737 in \$51,996,890 of total contract amount, for a resulting percentage of 1.34%.
- 10 New Projects started, 6 Projects Completed, 21 Projects Continued.

FY15 Outlook:

- \$29,330,000 has already been encumbered to date.
- 12 New Projects starting, 14 Projects expected to be completed, 17 Existing Projects continuing into FY16.



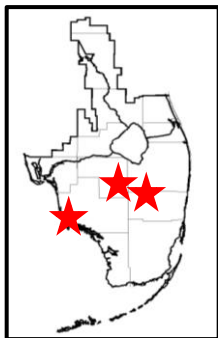
Operations, Engineering & Construction Capital Projects FY15

FY15 Outlook (cont.):

•Continuing Construction Projects Include:



**S-150 Replacement
Broward County.**



**G-151 Replacement
Hendry County.**



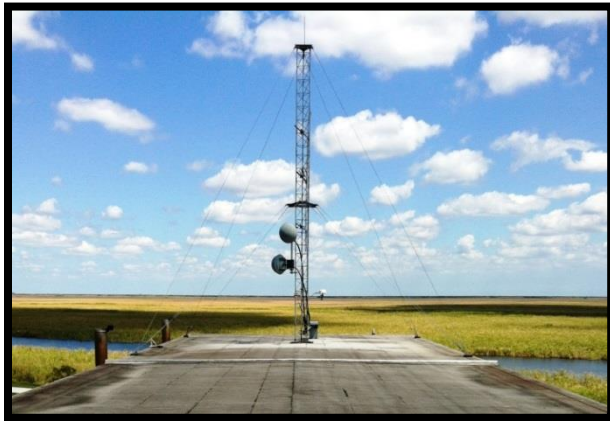
**Miller Weir 3 Replacement
Big Cypress Basin**



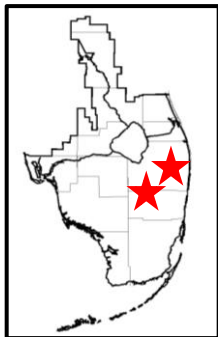
Operations, Engineering & Construction Capital Projects FY15

FY15 Outlook (cont.):

•Other Future and Continuing Construction Projects Include:



**S6 Tower Replacement
Palm Bch. County.**



**G-94 Series Refurbishment
Palm Beach. County.**



**IT Shelter Replacements
District Wide**



Operations, Engineering & Construction Capital Projects

Current and Upcoming Design Projects:

- BCB FS Progressive D-B (DeAngelis-Diamond, 50% in review)
- Hillsboro Package 3 (Atkins, 90% due in December)
- S5A Refurbishment (Brown & Caldwell, 30% in review)
- C4 Detention Basin Pump Stations (Feasibility Study, Scoping 10/23)
- G103 Replacement (Ash Engineering, in progress)
- S140 Trash Rake (Mock-Roos, November Design Start)
- G58 Gate Replacement (ADA Engineering, October Design Start)
- S39A Replacement (Atkins, November Design Start)
- C100A Bank Stabilization (unassigned, May Design Start)
- Golden Gate #4 Replacement (unassigned, January Design Start)



Operations, Engineering & Construction Capital Refurbishment Program

QUESTIONS

